
Fibre Remote IPE acceptance testing

This section describes the acceptance testing of the Meridian 1 Fibre Remote IPE. The purpose of acceptance testing is to verify that the functions and features of the Fibre Remote IPE are operating correctly.

Overview

Acceptance testing is conducted after the system has been installed, powered up, and appears to be functioning correctly, that is, all LEDs, displays, and system messages indicate that the system is operating correctly. The Fibre Remote IPE acceptance testing should be conducted after:

- A previously installed Meridian 1 system is upgraded with Fibre Remote IPE equipment and generic software X11 release 19 or higher and operates correctly without Fibre Remote IPE equipment
- A newly installed system with Fibre Remote IPE equipment using generic software X11 release 19 higher appears to operate correctly

Acceptance testing verifies the operation of Meridian 1 functions and features at the remote site equipped with the Fibre Remote IPE.

Acceptance testing consists of:

- Checking the system
- Preparing the system for testing
- Testing Meridian 1 functions at the Fibre Remote IPE site

Checking the system

After Fibre Remote IPE equipment has been installed and configured, you can visually inspect Fibre Remote IPE cards to make sure that they are operating correctly by observing their LEDs:

- On the Fibre Superloop Network card, check the card LED located at the top of the faceplate. If the LED on the Fibre Superloop Network card is off, and the Electro-optical packet(s) LED is also off, the card and packets are enabled and operating correctly. If the card LED is off and the Electro-optical packet(s) LED is on, the card is enabled and operating but the packet is faulty. If the card LED is on, the card is disabled or faulty. To enable the Fibre Superloop Network card or to correct a problem, go to **“Fibre Remote IPE fault isolation and correction” on page 111** in the Maintenance section of this manual.
- On the Fibre Peripheral Controller card, check the card LED located at the top of the faceplate. If the LED on the Fibre Peripheral Controller card is off, and the Electro-optical packet(s) LED is also off, the card and packets are enabled and operating correctly. If the card LED is off and the Electro-optical packet(s) LED is on, the card is enabled and operating but the packet is faulty. If the card LED is on, the card is disabled or faulty. To enable the Fibre Peripheral Controller card or to correct a problem, go to **“Fibre Remote IPE fault isolation and correction” on page 111** in the Maintenance section of this manual.
- Check the hexadecimal display on the Fibre Peripheral Controller card. Refer to Appendix A to identify hexadecimal codes displayed by the Fibre Peripheral Controller card during self-test.

If the display and all indicator LEDs on Fibre Remote IPE equipment indicate good operating conditions, the equipment is functional and you may proceed with setting up the necessary equipment for this test.

Setting up test conditions

To conduct acceptance testing, you must have a setup that can verify basic Meridian 1 functions and features initiated and terminated at the Fibre Remote IPE site. You may be able to use the system as configured at the site according to the customer requirements and not have to modify the configuration to perform the acceptance testing.

To conduct the acceptance testing, make sure that the Fibre Remote IPE at the remote site contains at least one IPE (line) card with at least two telephones connected to its subscriber loops. If possible, use some 2500 telephones to check the ringing generator and some digital telephones to check the dual tone multifrequency (DTMF) operation. Also, make sure that a terminal or a TTY is connected to the MMI port through the Fibre Peripheral Controller card backplane connector.

If you have a wall-mounted main and extension cabinets, install at least one line card in each cabinet and connect at least one telephone to each line card subscriber loop.

Performing acceptance testing

Since functions and features at the Fibre Remote IPE site are identical to functions and features at the local Meridian 1 site, the main purpose of acceptance testing is to verify that fibre-optic equipment is functioning correctly. This can be accomplished by:

- performing basic voice calls
- using the MMI terminal to configure and maintain Fibre Remote IPE equipment
- checking the protection switching of the fibre-optic link

Voice calls

A voice call can be established between two voice terminals across a network, between two terminals on the same PBX, and even between two terminals on the same line card.

Acceptance testing of Fibre Remote IPE voice calls is conducted when testing the following basic system features supported by telephone sets connected to subscriber loops at the remote site:

- placing a call to the remote site
- placing a call in call hold/call retrieve

Placing a call to the remote site

From the local Meridian 1 site, place a call to a Fibre Remote IPE site by dialing a remote station directory number (extension number).

Note: Meridian 1 treats Fibre Remote IPE subscriber loops as local loops; thus, you need to dial only the extension number to access that station.

To perform a call test:

- 1 From a terminal at the local Meridian 1 site, dial a terminal at the Fibre Remote IPE site and establish an active call connection.
- 2 Verify voice transmission by talking with the person at the other terminal. Make sure the speech is clear in both directions.
- 3 Maintain the connection and ask the person at the remote site to test basic calling features such as call hold/call retrieve.
- 4 Terminate the call.

Call hold/call retrieve

Call hold is used to place an active call on hold in order to answer an incoming call or place an outgoing call. After releasing an incoming or an outgoing call, you can retrieve the call on hold. For the wall-mounted main and expansion cabinets, you establish calls from stations connected to the subscriber loops in the main and expansion cabinets to verify the inter-cabinet cable connection.

To perform a call hold/call retrieve test:

- 1** From a terminal at the local Meridian 1 site, dial a terminal at the Fibre Remote IPE site and establish an active call connection.
- 2** Verify voice transmission by talking with the person at the other terminal.
- 3** Press the Hold key at the remote site to place the active call on hold.
Note: To find out how to use the feature keys on different terminals, consult the user manual supplied with the terminal.
- 4** Now, place an outgoing call from the terminal at the remote site by dialing an idle terminal located at the local Meridian 1 site.
- 5** Complete this outgoing call by first checking the voice clarity in both directions, and hang up.
- 6** Have another terminal call you while the first call is still on hold.
- 7** Answer the incoming call and place it on hold.
- 8** Retrieve the call first held.
- 9** Complete the call and hang up.
- 10** Retrieve the second call on hold.
- 11** Complete the call and hang up.

You may repeat this test for terminals connected to different subscriber loops on the same card or for different subscriber loops on different line cards in the Fibre Remote IPE module or cabinet. By making these calls, you generate traffic, which will be shown in the traffic report.

Checking the MMI terminal operation

Connect an MMI terminal to the Fibre Superloop Network card at the local site and another MMI terminal at the Fibre Remote IPE site.

- 1 Set the current mode of the MMI terminal to MMI mode by executing the **<esc>L** command on the MMI terminal at the local Meridian 1 site. Enter MMI commands in solid caps.
- 2 Check the status of the Fibre Superloop Network card by executing the **STAT** command.
- 3 Check the status of the Fibre Peripheral Controller card by executing the **SUMB STAT** command. This command is sent over the fibre-optic link to the Fibre Peripheral Controller card for execution.
- 4 Check the response to the STAT command for the local and remote sites.
- 5 Check the log file content by executing the **PLOG 5** to print five log messages from the file starting with the oldest message. Examine the messages.

Additional exercise of the MMI terminal will be conducted when testing the link protection switching.

Checking link protection switching

To verify that the link protection switching is operating correctly, conduct the following tests with the link:

- manual switch-over
- forced switch-over

Note: These tests can be conducted only with a redundant link configuration.

Manual switch-over

This is a unidirectional switch-over. To conduct this test:

- 1 Check the status of the fibre-optic link by executing the **QFIB** command from the MMI terminal. Make sure that both the PRIM and the SEC links are functional without an alarm condition.
- 2 Establish a call from the Fibre Remote IPE to the local Meridian 1 site. Refer to “Voice calls” on page 86 to establish the call.

- 3 Assuming that the traffic is carried by the primary link, perform the following step.
- 4 Switch the link to the secondary packet by executing the **MANS SEC** command from the MMI terminal.
- 5 Verify that the call is still established over the secondary link.
- 6 Unplug the Tx₁ FC/PC optical connector from the secondary packet at the local or remote site. The transmit path should automatically switch to the primary packet.
- 7 The call should continue to be established.
- 8 Reconnect the Tx₁ FC/PC optical connector.

Forced switch-over

Forced switch-over is used when replacing an Electro-optical packet. To conduct this test:

- 1 Check the status of the fibre-optic link by executing the **QFIB** command from the MMI terminal. Make sure that both the PRIM and the SEC links are functional without an alarm condition.
- 2 Establish a call from the Fibre Remote IPE to the local Meridian 1 site. Refer to **“Voice calls” on page 86** to establish the call.
- 3 Assuming that the traffic is carried by the primary link, perform the following step.
- 4 Switch the link to the secondary packets by executing the **FORC SEC** command from the MMI terminal.
- 5 Verify that the call is still established over the secondary link.
- 6 Clear forced switch-over by executing the **MCLR** command from the MMI terminal to enable automatic switch-over capability.

Removing the test setup

After acceptance testing has been completed and the results show that the system is operating correctly, you should remove the setup you used to conduct the testing and restore equipment according to the customer configuration.

If you used the actual customer configuration to perform these tests, you do not have to change or remove the setup.

Generating traffic reports

Use system traffic report to identify calls made during acceptance testing from the Fibre Remote IPE site and to the Fibre Remote IPE site.

To verify traffic generated during acceptance testing, use the following command to print the report:

TOPS r r

The parameters for this command are:

r r are report options. This must be one or more of the following numbers:

1 = Network traffic report

2 = Service loops traffic report

5 = Selected terminals traffic report

For more information on traffic reports, refer to the Traffic control program LD 02 in *X11 input/output guide* (553-3001-400).